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09/730,199	12/05/2000	Donald J. Kerfeld	10247US01	7264

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EXAMINER

UHLIR, NIKOLAS J

ART UNIT

PAPER NUMBER

1773

6

DATE MAILED: 04/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/730,199

Applicant(s)

KERFELD ET AL.

Examiner

Nikolas J. Uhler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 January 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 33-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) none is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) none is/are objected to.
- 8) ☐ Claim(s) none are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of claims 1-32 in Paper No. 5 is acknowledged. Claims 33-43 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

2. Applicant's traversal of the species election required by paper number 3 is also acknowledged. The examiner agrees with the applicant's argument and hereby withdraws the species election requirement. Thus, claims 1-43 are currently pending, with claims 33-43 withdrawn from consideration.

### ***Examiners Note***

3. The examiner respectfully notes to the applicant that the instant claims do not require the recited layers to be formed in any particular order or of any particular composition. Thus, the claims are quite broad in the sense that any prior art data storage medium having the recited layers in any order read on the claim limitations. The lack of requirements to composition or material characteristics in the claims also renders the claims open to very broad interpretations. For example, the limitations of claim 23 require the third layer to have a "buffer" layer. The applicant never specifies the location of the buffer layer or its composition. Thus, ANY piece of prior art having a substrate with a patterned polymer layer, and 2 additional conformal layers, even if those layers are recited as having a function other than a buffer (i.e a reflective layer

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and a protective layer), reads on the limitations of claim 23, as the first layer overtop the polymer layer is open to the interpretation that it is equivalent to the applicants claimed "buffer" layer, because the applicant has not required functionalities or compositions for the buffer layer and the additional layers in the third layer. The applicant is respectfully reminded that it is the examiners duty to give the claims their broadest reasonable interpretation, and that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 8-14, 17, 20-21, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Lewis et al. (US4519065).

6. With respect to the limitations of claim 1, wherein the applicant requires a data storage medium comprising a first layer; a second layer including a polymer, the second layer exhibiting surface variations, and a third layer substantially conforming to the surface variations of the second layer.

7. Regarding these limitations Lewis et al. (hereafter Lewis) teaches an embossed disc that comprises a substrate 12 (equivalent to applicants first layer), a polymeric

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coating 12 having a surface structure (equivalent to applicants claimed second polymer layer having surface variations), and a metal layer 16 that conforms to the surface structure exhibited by the polymeric coating 12 (equivalent to applicants claimed 3rd layer substantially conforming to the surface variations of the second layer) (figure 2, column 2, lines 46-51 and column 5, lines 5-25). Thus, the limitations of claim 1 are met.

8. With respect to claims 2-4, wherein the applicant requires the first layer to be a disk shaped substrate (claims 2-3) imparting rigidity and mechanical stability to the article (claim 4). The limitations of claims 2-3 are met as set forth above for claim 1.

Regarding the requirement that the substrate provide rigidity and mechanical stability to the article, the examiner takes the position that these limitations are necessarily met by Lewis, as Lewis teaches that the base material is made of any material that provides structural properties to the disc, such as metal, ceramic, thermoplastic or thermosetting polymers, or filled polymeric materials (column 2, lines 34-45).

9. Regarding claim 5, wherein the applicant requires the first layer to be made of a material selected from glass, aluminum, aluminum-magnesium alloy, ceramic, or plastic. As stated above for claims 2-4, Lewis teaches the use of Ceramic, Metal, and plastic substrates, including several specific examples, as shown by column 2, lines 34-45 and columns 15-18, examples 1-9).

10. Regarding claim 6, wherein the applicant requires the polymer to include a photo polymerized material. Lewis specifically teaches the use of radiation curable polymers for forming the embossed polymeric layer (column 6, lines 35-50). Thus, the limitations of claim 6 are met.

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11. Regarding claims 8-14, wherein the applicant requires the surface variations to be machine readable patterns (claim 8), such as data bumps comprising encoded data (claims 9-10), protrusions such as bumps, rails, lands and ridges (claims 11-12), or depressions such as pits, grooves, or channels (claims 13-14). As shown by figure 2, Lewis teaches a substrate that has a polymer layer having an embossed pattern. This embossed pattern has elevated portions, which the examiner takes to be equivalent to applicants claimed data bumps/protrusions/lands/ridges/rails. The embossed pattern also has depressed portions, which the examiner takes to be equivalent to applicants claimed depressions and pits/grooves/channels. It is further noted that Lewis specifically teaches that these surface variations comprise encoded data that is machine-readable (column 3, line 54-column 4, line 19). Thus, these limitations are met.

12. With respect to claim 17, wherein the applicant requires the surface variations to project from the article less than 50nm. Lewis teaches that the depth of the pattern formed in the disc substrate is between 0.03-10 $\mu$  (30nm-10 $\mu$ ) (column 13, lines 58-60). Thus, as 0.03 $\mu$  is completely encompassed by the applicants claimed range, this limitation is met.

13. Regarding claim 20, wherein the applicant requires the third layer to include a thin film stack. Lewis teaches a specific embodiment wherein an embossed disc is formed by coating a substrate with a polymer layer, a reflective layer, and a protective layer, and subsequently embossing the stack to form a disc having an embossed pattern (column 14, line 66-column 15, line 15). It is the examiners position that the combination of the reflective layer and the protective layer is equivalent to applicants

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claimed thin film stack, although it is noted that neither the claims nor the specification indicate that the thin film "stack" must be more than one layer.

14. Regarding claim 21, wherein the applicant requires the third layer to include a hard coat. This limitation is met as set forth above for claim 20.

15. Regarding claim 26, wherein the applicant requires at least one of the medium surfaces to be flyable. The examiner takes the position that this limitation is met by Lewis, as the disc of Lewis meets all of the structural limitations of claims 1-6, 8-14, 17, 20-21, 24, as stated above. The applicant is respectfully reminded that it has been held that **where claimed and prior art products are identical or substantially identical in structure** or composition, or are produced by identical or substantially identical processes, **a *prima facie* case of either anticipation or obviousness has been established** and the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433.

***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis as applied to claim 1 above, and further in view of Anderson et al. (US4304806).

18. Lewis does not teach utilizing a polymer that comprises  $\geq 30\%$  by weight epoxy-terminated silanes as radiation polymerizable components, as required by claim 7.

19. However, with respect to this deficiency, Anderson et al. (hereafter Anderson), teaches an information carrying element that comprises a substrate formed from a glass, polymers, ceramics, or metallic material, wherein the substrate is coated with a polymer layer that comprises at least 30% epoxy terminated silanes, wherein the polymer layer is further coated with a reflective layer (column 3, lines 20-65, column 4, lines 3-9 and column 2, lines 1-2). Anderson utilizes light sensitive catalysts to polymerize the epoxy-terminated silanes (column 4, lines 58-62), thus it is clear that these materials are photopolymerizable. Further, Anderson teaches that these epoxy-terminated silanes exhibit good abrasion resistance, and can be manufactured utilizing low temperature and pressure with non-metallic stampers and masters (column 5, lines 1-5 and 58-61).



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20. Therefore it would have been obvious to one with ordinary skill in the art to utilize the epoxy terminated silane polymer disclosed by Anderson as the polymer layer utilized in Lewis.

One would have been motivated to make this modification due to the teaching in Anderson that media utilizing epoxy terminated silanes as an embossed polymer layer exhibit good abrasion resistance and can be made at low temperature and pressure via non-metallic stampers and masters.

21. Claims 15-16, 18-19, 22-27, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis as applied to claim 1 above, and further in view of Davis et al. (WO00/48172).

22. Lewis does not teach the use of surface variations that correspond to servo patterns, as required by claims 15.

23. However, Davis teaches a data storage medium that utilizes a polymer layer having surface features such as bumps, pits and grooves. Further, Davis teaches that such features can be utilized for servo patterning, which is well known in the art of storage media to provide a read back signal that allows a read out mechanism such as a head to know its position relative to a track on the disc (page 19, lines 10-20).

24. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form a servo pattern in the embossed pattern of Lewis et al. as described by Davis.

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25. One would have been motivated to make this modification due to the fact that Davis teaches that embossed features such as pits can be utilized to form a servo pattern, which is well known in the art to provide positional information to a read out mechanism such as a head.

26. With respect to claim 16, wherein the applicant requires a "tracking pattern," the examiner takes the position that a servo pattern is a type of tracking pattern. Thus, this limitation is met as set forth above for claim 15.

27. Lewis does not teach the use of a magnetic material or optical recording material as the third layer, as required by claims 18-19.

28. However, Davis teaches a data storage medium that comprises a substrate, a polymer layer having surface features such as pits and grooves, and an additional layer on the plastic layer (page 3, lines 25-28). Suitable additional layers include reflective layers, data storage layers, and protective layers (page 4, lines 1-5), with suitable data storage layers including magnetic and magneto-optic layers (page 26, lines 25-28).

29. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a magnetic or magneto-optical layer as taught by Davis for the reflective layer taught by Anderson, as magnetic recording layers and magneto-optical recording layers are recognized as equivalent to reflective layers for forming a third layer overtop an embossed polymer layer of a data storage medium.

30. The applicant is respectfully reminded that substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. *In Re Fount* 213

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USPQ 532 (CCPA 1982); *In Re Siebentritt* 152 USPQ 618 (CCPA 1967); *Grover Tank & Mfg. Co. Inc V. Linde Air Products Co.* 85 USPQ 328 (USSC 1950).

31. Regarding claim 22, Lewis does not teach the use of a carbon, nitrogenated carbon, or hydrogenated carbon protective layer.

32. However, Davis teaches a data storage medium comprising a substrate, a polymer layer having features on the substrate, a third layer overtop the polymer layer, and a protective layer overtop the third layer. Suitable protective layers include polymeric materials such as polymeric films and diamond like carbon (page 27, lines 17-21).

33. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute diamond like carbon as taught by Davis for the polymeric protective layers taught by Lewis.

34. One would have been motivated to make this modification in lieu of the increased abrasion and scratch resistance one would expect to gain from utilizing a diamond like carbon coating as opposed to a polymeric coating.

35. Regarding the limitations of claim 23, wherein the applicant requires the 3rd layer to contain a buffer layer. The examiner takes the position that this limitation is met as set forth above for claim 22. In this instance, the reflective layer and the protective layer taught by Lewis as modified by Davis are interpreted to be equivalent to applicants claimed 3rd layer, with the reflective layer being equivalent to the applicants claimed buffer layer.

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36. With respect to claims 24-25, Lewis does not teach the use of a fourth layer of a lubricating material that substantially conforms to the surface variations of the second layer.

37. However, Davis teaches that additional layers such as a layer of lubricant are adventitiously applied over data storage and reflective layers that are formed over embossed polymer layers (page 28, lines 1-10). Further, Davis teaches that the lubricant layer may be applied via conventional means, i.e. sputtering, chemical vapor deposition, plasma enhanced CVD, etc...

38. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to sputter deposit a lubricant layer as taught by Davis over the reflecting layer taught by Lewis.

39. One would have been motivated to make this modification due to the increased slipperiness/abrasion resistance of the surface one would expect to gain as a result. It is the examiners position that a sputter deposited lubricant layer will conform to the surface variations in the polymer layer, as the applicant on page 15-16, lines 27-8 specifically teaches that sputtering is a suitable method for forming a layer that will conform to the surface variations of the polymer layer. One would have selected sputtering in light of the fact that sputtering is recognized as equivalent to the other methods listed as suitable for forming a lubricant layer as disclosed by Davis.

40. Regarding the limitations of claim 26, wherein the applicant requires at least one of the surfaces to be flyable. Although not expressly taught by either Lewis or Davis, the examiner takes the position that this limitation is met by the combination of these

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references, as the combinations results in a material that meets all of the structural limitations of claims 1-6, 8-22, and 24-25. The applicant is referred to paragraph 15 above for the citation of case law that states that a prima facie case of obviousness is established when the office shows that the prior art has identical or substantially identical structure and or composition.

41. Regarding claim 30, wherein the applicant requires a data storage medium comprising a first data storage layer, a second data storage layer, the second data storage layer including a polymer containing surface variations, and a lubrication layer substantially conforming to the surface variations wherein the variations are arranged in a machine readable pattern.

42. With respect to these limitations, Lewis teaches an embodiment wherein a metal disc is formed having 1st data storage layer 47 (equivalent to applicants claimed 1st data storage layer), on which an embossed polymer layer 46 (equivalent to applicants claimed second data storage layer comprising a polymer having surface variations), and a protective layer 42 is formed (column 3, lines 15-30). Lewis teaches a method for forming the protective layer by coating the protective material on the polymer layer and then embossing the polymer and the protective layer (column 15, lines 1-15).

43. However, Lewis does not teach a lubricant layer that substantially conforms to the surface variations of the polymer layer, as required by claim 30.

44. With respect to this deficiency, Davis teaches applying lubricant layers to the surfaces of embossed disks via conventional techniques including sputtering, chemical

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vapor deposition, plasma-enhanced chemical vapor deposition, reactive sputtering, evaporation and the like (page 26, lines 16-28 and page 28, lines 1-10).

45. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to sputter deposit a lubrication layer as taught by Davis onto the protective layer taught by Lewis.

46. One would have been motivated to make this modification due to the improvement in the slipperiness/abrasion resistance of the material one would expect to gain as a result of using a lubricant. It is the examiners position that a sputter deposited lubricant layer will conform to the surface variations of disc, in light of the fact that the applicant on page 15-16, lines 27-8 of the instant specification that sputtering is a suitable method for applying a coating in such a way as it conforms to the surface variations of the polymer layer. One would have selected sputtering in light of the fact that sputtering is recognized as equivalent to the other methods listed as suitable for forming a lubricant layer as disclosed by Davis.

47. Regarding claim 27, wherein the applicant requires a data storage medium comprising a substantially rigid substrate, a polymer containing surface variations, a thin film stack substantially conforming to the surface variations, and a lubrication layer substantially conforming to the surface variations, wherein the surface variations are arranged in a machine readable pattern. These limitations are met as set forth above for claim 30, as the examiner interprets the reflecting layer and protective layer of Lewis to meet the applicants requirement of a thin film "stack." The examiner respectfully points out that although in the instant case Lewis meets a requirement of a multilayer "stack,"

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there is no requirement or indication in the instant claims or specification that require the thin film "stack" to be more than one layer. Further, the examiner takes the position that the substrate material that provides "structural characteristics" (column 2, lines 33-35) to the media taught by Lewis meets the applicants requirement of a "substantially rigid" substrate.

48. Regarding claim 29, wherein the applicant requires a substantially transparent plastic substrate, a reflective layer, a polymer containing surface variations, a thin film stack substantially conforming to the surface variations, a lubrication layer substantially conforming to the surface variations, wherein the surface variations are arranged in a machine readable pattern. The bulk of these limitations are met as set for above for claim 27, as the examiner takes the position that the protective layer of Lewis meets applicants requirement of a thin film "stack," as no requirement or indication is made in either the claims or the specification that the thin film "stack" must be more than one layer. With respect to the use of a transparent plastic substrate, Lewis teaches that the substrate may be transparent or opaque, and formed from materials including metals, thermoplastic, thermoset, or filled polymeric materials, and ceramics.

49. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a transparent plastic substrate as the substrate in Lewis, as Lewis recognizes the equivalence of transparent polymers to other materials listed as suitable for forming the substrate.

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50. Claim 28 rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis as modified by Anderson as applied to claim 7 above, and further in view of Kerfield et al. (US4374077).

51. Lewis as modified by Anderson above does not teach the use of a flexible contact media substrate, as required by claim 28. It is further noted that Lewis teaches that any substrate that provides "structural properties to the media" may be used (column 2, lines 30-35).

52. Further, Kerfield et al. (hereafter Kerfield) teaches a information carrying disc that comprises an opaque or transparent substrate that has an information carrying layer that has depressions/grooves/protuberances on its surface (column 3, lines 15-27). The information carrying layer is preferably formed from an epoxy terminated silane material (column 7, lines 30-45). Kerfield teaches a method for making such a disc that utilizes at least one flexible sheet as either the substrate or the stamper (column 2, lines 13-20), wherein a bead of photopolymerizable liquid (the material of the data storage layer) is rolled out over the master (column 2, lines 38-40). From this statement, it is logical to infer that when a flexible stamper is utilized, a flexible sheet is not necessary for the substrate, and conversely that when a flexible sheet is utilized as the substrate, a flexible sheet is not necessary for the stamper. Kerfield teaches that making the storage media via this process removes all of the air from the in the mold, which in turn eliminates beading and wicking of the photopolymerizable liquid, and eliminates the need for costly leveling agents (column 2, lines 38-48)



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53. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the data storage media taught by Lewis as modified by Anderson via the process of Kerfield.

54. One would have been motivated to make such a modification due to the teaching in Kerfield that making a data storage media that comprises a transparent or opaque substrate and a data storage layer of a photopolymerizable epoxy terminated silane via the method discussed above eliminates beading and wicking of the photopolymerizable polymer and the need for expensive leveling agents.

55. Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a flexible substrate as taught by Kerfield as the Substrate utilized by Lewis as modified by Anderson.

56. One would have been motivated to make this modification due to the teaching in Anderson that flexible substrate or a flexible stamper is suitable for advancing a bead of photopolymerizable material along the master. Thus, Kerfield recognizes that either a flexible substrate/non-flexible or flexible stamper is suitable or a non-flexible or flexible substrate/ flexible stamper is suitable. Thus, Kerfield recognizes that equivalence of flexible and non-flexible substrates as suitable materials for supporting a photopolymerizable layer of an epoxy terminated silane.

57. Claims 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis as modified by Davis as applied to claims 18 and 19 above, and further in view of Smith et al. (US5739972).

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58. Regarding the limitations of claim 31, wherein the applicant requires a removable hard disk drive comprising a housing, and a data storage unit with the same requirements as claim 1. Lewis as modified by Davis is relied upon as stated above to teach a data storage medium utilizing magnetic or magneto optic layers. However, Lewis as modified by Davis does not teach a removable hard disk drive having a housing that utilizes this data storage medium, as required by claim 31.

59. With respect to this deficiency, Smith et al. (hereafter Smith) teaches a data storage system (equivalent to applicants claimed removable hard disk drive) comprising a data storage media, a housing, and a magnetic transducer for reading and writing information to the recording medium (column 4, lines 39-60)

60. Therefore it would have been obvious to one of ordinary skill in the art to utilize the media of Lewis as modified by Smith in the data storage system detailed by Smith.

61. One would have been motivated to make this modification due to the fact that Smith teaches a data storage apparatus that utilize magnetoresistive heads to read and write data to a recording medium, and the fact that Lewis as modified by Davis teaches a recording medium that utilizes a magnetic or magneto optic recording layer, which can be read by a magnetoresistive head such as that utilized by the system of Smith.


### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhler whose telephone number is 703-305-0179. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0389.

  
nju  
April 9, 2003

  
Paul Thibodeau  
Supervisory Patent Examiner  
Technology Center 1700